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ABSTRACT

Several federal legislative proposals have called for specified minimum pass rates on state teacher licensing examinations to establish institutional eligibility for certain federal funding. Thirty-one states and the District of Columbia will use The Praxis Series: Professional Assessments for Beginning Teachers developed by the Educational Testing Services for teacher licensure as of fall 1998. To help inform policy decisions about using Praxis results to evaluate teacher education programs, analyses of Praxis score data from the 1996-97 testing year were conducted. The report examines the possible effects of proposals to eliminate the eligibility for certain federal funding of institutions of teacher education that fail to meet a specified pass rate on state teacher licensing examinations for their graduates. The report describes the Praxis I assessments of basic skills in reading, writing, and mathematics, and the nearly 140 Praxis II subject assessments offered in more than 50 content areas. It discusses issues related to state qualifying scores and variations among them and describes state and institutional pass rates, with particular attention to institutions with fewer than 10 students taking a test. Data are provided to illustrate the effects of the proposed pass rate requirements and the first attempted provision. The report concludes with some guidelines, concerns, and cautions that should be considered in the policy debates. It is recommended that policymakers exercise caution in requiring minimum pass rates for institutions. The guidelines for the Praxis assessments point out that institutional efficacy is indicated by many factors, only one of which is the performance of graduates on licensing examinations. (SLD)

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# The Use of Praxis Pass Rates to Evaluate Teacher Education Programs

## *An ETS Background Report*

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*May 1998*

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# The Use of Praxis Pass Rates to Evaluate Teacher Education Programs

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*— REVISED —*

May 1998

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## Executive Summary

This report has been prepared by the Educational Testing Service® (ETS) State and Federal Relations Office in response to recent inquiries about the potential effects of certain legislative proposals intended to improve teacher education. Several of these proposals call for specified minimum pass rates on state teacher licensing exams to establish institutional eligibility for certain federal funding. ETS is one of two testing organizations that offer assessments for state teacher licensure in the United States, and the only one that offers such assessments nationally. Thirty-one states plus the District of Columbia and the Virgin Islands will use The Praxis Series: Professional Assessments for Beginning Teachers® for teacher licensure, as of fall 1998. We estimate that over half of all licensure candidates tested annually take Praxis assessments.

To help inform policy deliberations, we have conducted analyses on Praxis score data from the 1996-1997 testing year. This report examines the possible effects of proposals to eliminate the eligibility for certain federal funding of institutions of teacher education that fail to meet a specified pass rate on state teacher licensing exams for their graduates. Suggested required pass rates have ranged from 70% to 90%. Some proposals have required that pass rates be based on those who passed the exam *on the first attempt*. We examine the potential effect of this requirement as well.

Because of commitments to protect the confidentiality of data identified with examinees taking ETS tests, as well as states and institutions to whom the data are reported, ETS does not publicly disclose test scores or state or institutional pass rates on its assessments. We are, however, committed to sharing relevant data that pertain to pressing public policy issues. To this end, we are providing aggregated test information from the Praxis assessments for the 1996-1997 testing year such that particular states and institutions are not identifiable.

This report briefly describes the Praxis I assessments of basic skills in reading, writing, and mathematics and the nearly 140 Praxis II subject assessments offered in more than 50 content areas. It then discusses issues relative to state qualifying scores and variations among them. Next, we describe both state and institutional pass rates, with particular attention directed to institutions *with fewer than 10 students taking a test*. Data are provided to illustrate the effects of the proposed pass rate requirements and the first attempt provision. Our report concludes with some guidelines, concerns, and cautions that we think should be considered in the policy debates.

***Qualifying scores*** (also referred to as passing scores, passing standards, or cut scores) are set by states for each of the assessments they require for licensure. Since a qualifying score must be set for each test, states have many qualifying

scores. These scores vary considerably across tests and across states. The success rate of an institution depends in part on where this cut point has been set by the state. Recent state qualifying scores on six subject tests ranged from below the 25th percentile to above the 50th percentile, depending on the test, of the score distributions of all test-takers. (See Table 1.)

**Pass rates** on Praxis exams indicate the percentage of examinees that met or exceeded the qualifying score for the particular assessment set by the state that requires the test. Such pass rates vary across states and institutions, depending on state qualifying scores and on the performance of the teacher candidates each year.

A state or institution can have many pass rates, depending on the number of exams required for licensure. To inform policy deliberations on the important issue of new teachers' content knowledge in the subject they are about to teach, we selected six illustrative Praxis II subject assessments for analysis, including a test in elementary education, English, math, science, social studies, and a foreign language, as follows:

(1) Elementary Education: Curriculum, Instruction, and Assessment
(2) English Language, Literature, and Composition: Content Knowledge
(3) Mathematics: Content Knowledge
(4) Biology and General Science
(5) Social Studies: Content Knowledge
(6) Spanish: Content Knowledge

State pass rates. Table 2 shows the pass rates anonymously on these tests for the states that require them. The pass rates vary considerably by state and by test, depending on each state's qualifying scores for each test, as well as on the performance of the teacher candidates trained within the state. Pass rates were lowest in mathematics and highest in elementary education.

Institutional pass rates. We point out that *pass rates based on a small group of students can be overly influenced by the performance of a single student*. For example, if only six students are being tested, one additional student passing a test can raise the pass rate from below 70% to above 80%. Alternatively, one student failing instead of passing could lower the pass rate from above 80% to below 70%. Fluctuations associated with pass rates based on a few students could result in institutions being given an unfair advantage or disadvantage with respect to meeting the pass rate. Our analysis shows that *over three-fourths of the institutions preparing students in the six content areas were testing fewer than 10 students in 1996-1997*. (See Table 3.)

Table 4 shows the effect on teacher preparation institutions of a 70%, a 75%, or an 80% pass rate requirement for funding eligibility. It presents data only for institutions *with 10 or more students* taking one of the six illustrative content knowledge tests. With the exception of those preparing students for the Mathematics: Content Knowledge test, relatively few institutions would be

ineligible based on their pass rates at the 70% pass rate requirement. On the math test, however, nearly 80% of the institutions (23 out of 29) would be ineligible at that requirement. The impact of increasing the required pass rate also varies according to the subject test. For four of the six tests, relatively few institutions would become ineligible if the pass rate increased from 70% to 75% or from 75% to 80%. For English and for social studies, however, the number of ineligible institutions would more than double if the pass rate requirement were to increase from 70% to 75% and more than triple if the pass rate requirement changed from 70% to 80%. At the 80% pass rate requirement, twenty-six (90 percent) of the institutions preparing students for the math test and twenty-four (over 50 percent) preparing for the social studies exam, would be ineligible. For the four other subject tests, from four to fourteen (13 percent to 44 percent) of the institutions—depending on the exam—would become ineligible given an 80% pass rate requirement.

***"Pass on first attempt,"*** a requirement for computing pass rates in some early legislative proposals, has generated considerable discussion. Our results from a limited analysis show small increases in pass rates by using data based on students' opportunity to re-take a test in the same testing year. Gains from additional attempts on Praxis I basic skills tests pass rates were minimal, ranging from two to three percentage points. Small, but slightly larger gains were shown for the six illustrative Praxis II subject tests. The largest pass rate increase, of eight percentage points from first to last attempt, was on the Mathematics: Content Knowledge test. (See Table 5.) We note, however, that the findings of the "first attempt" analyses shown on this table should be viewed with caution, as the data were drawn from just one testing year. If students' attempts before and after that year had been included, the gains from first to last attempt would have been larger, as discussed on page 13.

***Conclusions.*** ETS recommends that policy-makers exercise caution in requiring minimum pass rates for institutions. The use of pass rates on teacher licensing exams as the sole criterion for institutional eligibility for funding would be inconsistent with good professional practice. Our guidelines for the use of Praxis scores, summarized in this document, point out that institutional efficacy is indicated by many factors, only one of which is the performance of graduates on licensing exams. We further recommend that tests be validated for the specific purposes for which they are used, including the evaluation of teacher preparation programs.

The use of pass rates to determine funding eligibility could result in inequities to institutions producing only a few teacher education graduates annually. Over three-quarters of the institutions studied for this analysis were testing fewer than 10 students in a subject. Pass rates based on such small numbers are unstable, as they are overly influenced by the performance of a single student. We thus encourage policy-makers to take this important concern into account as legislation is considered.

States use varying licensing tests with varying levels of difficulty and varying qualifying scores, and nine states do not test for teacher licensure. The states that use ETS assessments choose from nearly 140 Praxis subject tests. Thus, there is no comparability from state to state unless states use the same tests with the same qualifying scores. Some examinees seek licensure in a state other than the one in which they received their teacher preparation, and the "receiving" state is likely to have qualifying scores that are different from those of the "sending" state. Some states require that prospective teachers pass several tests in order to be licensed.

A single pass rate requirement, therefore, would not be equitably applied across states and would not represent a nationally uniform standard. The already federally sanctioned professional accreditation process does offer such a standard. We respectfully suggest that policy-makers explore the philosophy and intent of the NCATE 2000 initiative of the National Council for Accreditation of Teacher Education, which is designed to link program accreditation with licensing outcomes.

This paper is presented to inform policy debate and to generate constructive discussion, and we welcome comments and questions from colleagues. For questions regarding the findings of the study, please contact: Penelope Engel of the ETS State and Federal Relations Office, Washington, D.C. at 202/659-8043 (or pengel@ets.org), or Ines Bosworth of the Praxis Program in the ETS Midwestern Office, Evanston, Illinois, at 847/869-7700 (or ibosworth@ets.org).

# I. Introduction

This background report was prepared by ETS in response to requests from Congressional staff, education association and interest group representatives, as well as the Congressional Research Service, for information on pass rates on the Praxis teacher licensing exams. As the reauthorization of the Higher Education Act has proceeded through the 105th Congress, significant attention has focused on the current Title V (new Title II), concerning the preparation and development of teachers. More than 10 bills or legislative proposals have been presented for consideration in recent months, each suggesting incentives to improve teacher education. One category of incentives offered in several proposals is the requirement that, in order to be eligible for federal funds for teacher preparation purposes, teacher education programs at collegiate institutions must achieve minimum specified pass rates on their state's teacher licensing exams.

As this paper goes to press, the House has already passed a bill to reauthorize the Higher Education Act, and the Senate is expected to vote on its bill shortly. Provisions concerning improvement of teacher education programs are contained in both bills, and conferees will have the responsibility of resolving the differences.

A House provision requires that in order to be eligible for funding for "exemplary institution" partnerships, a state must show that at least 80 percent of the teacher education graduates of such institutions pass assessments of subject matter knowledge in the content areas(s) in which they will teach. A 70% pass rate is required of all teacher education programs in the state for future receipt of teacher preparation funds under the act. A related provision requires states to report to the Secretary of Education those programs that receive federal funds and have less than a 70% pass rate on any of the state's initial teacher licensing assessments.

A proposal being considered in the Senate, now undergoing revision, also includes a pass rate requirement. This proposal requires that, in order to receive federal funds for teacher preparation purposes, a teacher education institution must either meet professional accreditation standards or show that 75 percent of its graduates pass their license exam. Exams must include an assessment of teachers' content area knowledge in the area(s) in which they plan to teach. Earlier language requiring students to pass their exam *on their first attempt*, has now been dropped.

ETS offers examinations nationally to states for teacher licensure through its NTE (National Teacher Examinations) testing program and its successor, The Praxis Series: Professional Assessments for Beginning Teachers®. Not surprisingly, questions as to differences in state qualifying scores and the effects of various proposed pass rates on institutions of teacher education have been directed to ETS.

The closer these issues are examined, the more their complexities become evident, as explained below. Although ETS desires to provide data to inform public policy debates, this desire is superseded by our confidentiality commitments to test-takers as well as to Praxis clients. Thus, this document provides aggregate information without associating data with any particular student, state, or institution.

ETS is not endorsing a particular legislative proposal at this time. Our purpose is to shed light on the complexities surrounding the use of pass rates and to point out caveats and cautions that should be kept in mind. Our intent is to assist the reader in understanding the numerous variations in teacher licensing requirements as well as the potential effects of specified pass rates on institutions in the aggregate.

ETS has developed and administered the National Teacher Examinations since 1948. During that period, NTE became widely used across the nation, both for purposes of state licensing and for entry into institutional teacher preparation programs. Over time, many subject area and specialized tests were developed and added to the NTE complement. In 1987, ETS initiated a very large research and development effort to create a new series of program entry and licensing exams, The Praxis Series: Professional Assessments for Beginning Teachers®, to ultimately replace the NTE. Currently, some states are using Praxis tests and others are in a transition period, as they change from NTE to Praxis. (Hereafter in this report, "Praxis" will be used to refer to both NTE and Praxis exams.)

ETS is one of two testing organizations that offer teacher assessments for state licensing in the United States. As of fall 1998, 31 states plus the District of Columbia and the Virgin Islands will use one or more Praxis exams for state teacher licensure. We estimate that over half of all candidates tested annually for licensure take Praxis assessments. National Evaluation Systems, of Amherst, Mass., provides licensure testing services to nine states and shares licensure testing with ETS in one state. An additional nine states (Alabama, Idaho, Iowa, North Dakota, South Dakota, Utah, Vermont, Washington, and Wyoming) do not test for teacher licensing at this time.

This paper first provides a description of the Praxis exams, followed by a discussion of scores on the tests, how ETS reports them, and the variation in states' qualifying scores on these exams. We then provide information about pass rates and the potential effects of those specified in current legislative proposals. Next, we discuss the matter of pass rates based on test-takers' "first attempt," compared to pass rates based on any number of attempts within a testing year. We conclude with guidelines for the use of Praxis scores and a summary of concerns and cautions.

## II. The Praxis Assessments

Praxis assessments, along with other criteria, are used for three primary purposes:

1. by state agencies, for licensing teachers and other school professionals

2. by higher education governing agencies and educational institutions, for assessing the readiness of applicants seeking entry into a teacher education program, typically in their junior year

3. by state agencies and educational institutions, to evaluate the effectiveness of undergraduate teacher training programs.

**The Praxis Series™ includes:**

**Praxis I:** **Academic Skills Assessments**. These Reading, Math, and Writing assessments test the basic skills that have been identified as needed by beginning teachers. They are taken by students whose institutions require Praxis I scores for entry into their programs. In addition, they are taken by students for licensure, as required by 19 states plus the District of Columbia and the Virgin Islands. The tests are available in both pencil-and-paper and computer-based formats.[1]

**Praxis II:** **Subject Assessments**. The nearly 140 tests in more than 50 areas measure knowledge of specific academic subjects or fields and are designed to evaluate the knowledge and skills prospective teachers acquire in their academic preparation. These tests are taken for licensure to teach in a particular content area. Praxis II tests also include the three Principles of Learning and Teaching Tests (Grades K-6, Grades 5-9, and Grades 7-12), which assess a preservice, beginning, or provisional teacher's knowledge of a variety of job-related criteria. Praxis II tests are required by 27 states plus the District of Columbia.

**Praxis III:** **Classroom Performance Assessments**. These assessments combine in-class observation of teaching performance with written documentation and pre- and post-observation interviews. Trained assessors contribute to state licensing decisions through the use of a common evaluation framework. Praxis III is currently being pilot tested in the state of Ohio.

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[1] The Praxis I pencil-and-paper basic skills tests are known as the Pre-Professional Skills Tests (PPST). The Praxis I computer-based basic skills tests are referred to as "CBT.".

## III. Praxis Scores

Praxis scores are provided to three entities:

* the responsible state agency
* the institution the candidate is attending
* the individual examinee

*Because of commitments to protect the confidentiality of data identified with examinees taking ETS tests, as well as states and institutions to whom the scores are reported, ETS does not provide Praxis scores or pass rates to entities other than those listed above. Interested parties may contact the appropriate state department of education to ascertain the public availability of this information.*

In accordance with sound professional practice, as expressed in the standards of the profession, ETS standards, and the specific guidelines of the Praxis program (See Section IV, page 15), Praxis scores may **not** be used:

* as the sole criterion for any decision
* without appropriate validation
* without appropriate standard-setting studies
* to rank candidates or programs for presumed quality
* by school districts to make employment decisions relative to licensed teachers

### State Qualifying Scores

Praxis user states set qualifying scores (also referred to as passing scores, passing standards, or cut scores) on each of the assessments they require for licensure. These qualifying scores vary considerably across tests, depending on each test's level of difficulty, and across states. For example, in a recent year, the state of Ohio required 31 different Praxis assessments, and Indiana required 36 assessments, each with its own state-established qualifying score. Some examinees seek licensure in a state other than the one in which they received their teacher preparation. Such a "receiving" state is likely to have different qualifying scores for teacher licensure on one or more of its tests from those of the "sending" state.

The qualifying scores set by states are public information and are published bi-annually by ETS.[2] For example, qualifying scores on the Praxis I Pre-Professional

[2] See the attached publication, "Understanding Your Praxis Scores, 1997-98 Spring Edition."

Skills Tests, set by the 19 states plus the District of Columbia and the Virgin Islands that use them for licensing, range from 169 to 178 on the Mathematics and Reading tests, and from 168 to 176 on the Writing test. Qualifying scores on one or more Praxis II Subject Assessments have been set by 27 states and the District of Columbia for licensing purposes. These scores on the nearly 140 subject assessments in more than 50 fields also vary widely across subjects and states.

Table 1 presents the range of qualifying scores across participating states for six illustrative Praxis II content area tests. The state qualifying scores range from below the 25th percentile to above the 50th (but below the 75th) percentile of the score distributions of all test-takers, depending on the test.[3] Using Elementary Education—the first test listed—as an example, the table shows that at least one state has set its qualifying score on that test at 143, and that at least one other state has set its qualifying score at 164, and that the qualifying scores for the remaining states fall within that 143-164 range. The table also shows that the qualifying scores of all states for this test fall below the 25th percentile of the distribution of all test-takers' scores.[4]

It is apparent that in the absence of uniform qualifying scores across states, the impact of a requirement for a specified pass rate on a state's teacher licensing exam would differ across states.

ETS does not set qualifying scores but is available to provide consultation to states regarding the process. Each state, agency, or institution considering establishing a qualifying score on one of the Praxis assessments must conduct a standard-setting study using a technically and legally acceptable method. Evidence that supports the use of the qualifying score is gathered to assure that the score is consistent with a reasonable judgment of the minimum required academic knowledge and skills. Each state is expected to periodically review and update this process.

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[3] "Percentile" refers to a point in the score distribution below which the stated percentage of all scores fall. A test-taker scoring at the 25th percentile has scored higher than 25 percent of the students; a test-taker scoring at the 75th percentile has scored higher than 75 percent of the students.

[4] However, for a given state and a given test, the pass rate among that state's students is likely to be different from the pass rate that would result from applying the state's passing score to all test-takers.

## Table 1
## Score Distribution Percentiles and Range of State Qualifying Scores on Selected Teacher Licensure Subject Tests
**1996-1997 Testing Year**

| Praxis II Subject Assessments (six illustrative tests) | Score Distribution Percentiles (among all test-takers) | | | Range of State Qualifying Scores |
|---|---|---|---|---|
| | 25th Percentile | 50th Percentile | 75th Percentile | |
| Elementary Education: Curriculum, Instruction, and Assessment | 167 | 179 | 188 | 143-164 |
| English Language, Literature, and Composition: Content Knowledge | 165 | 177 | 187 | 138-172 |
| Mathematics: Content Knowledge | 120 | 137 | 153 | 124-147 |
| Biology and General Science | 580 | 630 | 690 | 540-590 |
| Social Studies: Content Knowledge | 156 | 168 | 178 | 134-162 |
| Spanish: Content Knowledge | 160 | 176 | 188 | 143-171 |

Note: Score distribution percentile data refer to the group of all examinees who took these tests between October 1, 1996 and September 30, 1997. The Biology and General Science test is scored on the NTE scale of 250-990; the others are scored on the Praxis scale of 100 to 200. The range of qualifying scores is as of August 1997.

## Praxis Pass Rates

Pass rates on Praxis exams indicate the percentage of examinees who met or exceeded the qualifying score for the particular assessment set by the state that requires the test. Such pass rates vary across states depending on the qualifying scores and on performance of the teacher candidates each year. Rates for each particular Praxis assessment can be calculated for each state and for each institution attended by the teacher candidates. Thus, any state or institution can have a multitude of pass rates, depending on the number of Praxis exams required of its

teacher candidates for licensure. *It is difficult to compare pass rates across states fairly because of differences in state qualifying scores.*

**State Pass Rates.** In an attempt to address the important policy issue of new teachers' content knowledge of the subject they are about to teach, ETS prepared Table 2, *"Pass Rates for Individual States (Not Identified) on Selected Subject Tests for Teacher Licensure."* Although the names of the states that require each of the six tests are public information, they are listed by number only in this table so that their identity and their pass rates are anonymous. *The order in which they are listed has been randomized separately for each test.* For example, the state listed as #3 in one column is not necessarily the same state listed as #3 in any other column. This table reports state pass rates on Praxis II subject tests in the six illustrative areas. We have reported pass rates only for those states that tested at least 20 candidates in the 1996-1997 testing year on a particular test. Each of these six tests is a requirement for licensure in at least eight states. Not all the states require all six tests.

The reader can see that the pass rates vary considerably by state and by test. As explained above, this variation is affected by the particular qualifying score established by each state for each test. We can see, for the illustrative tests in the table, that pass rates are lowest in Mathematics: Content Knowledge and highest in Elementary Education. The number of test-takers for each of the tests in the 1996-1997 testing year is shown on Table 5.

# Table 2
## Pass Rates for Individual States (Not Identified*) on Selected Subject Tests for Teacher Licensure
### Percent of test-takers attending teacher preparation institutions in each state requiring the test for certification who met that state's required qualifying score 1996-1997 Testing Year

| Elementary Ed.: Curriculum, Instruction, and Assessment | | English Language, Literature, and Composition: Content Knowledge | | Mathematics: Content Knowledge | | Biology and General Science | | Social Studies: Content Knowledge | | Spanish: Content Knowledge | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| State | Pass rate | State | Pass rate | State | Pass rate | State | Pass rate | State | Pass rate | State | Pass rate |
| 1 | 96% | 1 | 73% | 1 | ** | 1 | 71% | 1 | 90% | 1 | 94% |
| 2 | 91% | 2 | 85% | 2 | 61% | 2 | 87% | 2 | 93% | 2 | ** |
| 3 | 80% | 3 | 98% | 3 | 50% | 3 | ** | 3 | ** | 3 | 71% |
| 4 | 100% | 4 | 96% | 4 | ** | 4 | 97% | 4 | 76% | 4 | ** |
| 5 | ** | 5 | ** | 5 | ** | 5 | 85% | 5 | 83% | 5 | 70% |
| 6 | 93% | 6 | 91% | 6 | 56% | 6 | 64% | 6 | 73% | 6 | ** |
| 7 | 96% | 7 | 94% | 7 | 50% | 7 | 92% | 7 | 96% | 7 | 78% |
| 8 | 79% | 8 | 70% | 8 | 76% | 8 | 79% | 8 | 63% | 8 | 82% |
| | | 9 | 87% | 9 | 57% | 9 | 81% | 9 | ** | 9 | ** |
| | | 10 | 91% | 10 | 52% | | | 10 | 81% | 10 | ** |
| | | 11 | ** | | | | | 11 | 78% | | |
| | | 12 | 87% | | | | | 12 | 88% | | |
| Combined Pass Rate: | 93% | Combined Pass Rate: | 90% | Combined Pass Rate: | 57% | Combined Pass Rate: | 79% | Combined Pass Rate: | 80% | Combined Pass Rate: | 81% |

*States are listed without identification, and the order in which the states are listed has been randomized separately for each test. For example, the state listed as #3 in one column is not necessarily the same state listed as #3 in any other column. Each column includes only those states that have established a single qualifying score on that test. Each test-taker is counted only once, regardless of the number of attempts. Pass/fail status is based on the test-taker's last attempt in Testing Year 1996-97. Institutional affiliation is based on the test-taker's listing of "College where you received training relevant to the test" and may include test-takers who are not current students or recent graduates. "Combined pass rate" is the total number of test-takers passing the test in their respective states divided by the total number of test-takers in all those states; it includes test-takers in states with different qualifying scores.

**Pass rates based on fewer than 20 test-takers are not shown.

**Institutional Pass Rates.** An institutional pass rate is the percentage of candidates at each teacher preparation institution who meet or exceed the state's qualifying score. Institutional pass rates depend on the qualifying scores set by each state and on the performance of the teacher candidates each year.

At the institutional level it is common to find very small programs graduating from five to 10 prospective teachers in any given subject area. ETS, in fact, does not report pass rates based on fewer than 10 test-takers. One of the reasons for this policy is that *a pass rate based on a small group of students can be overly influenced by the performance of a single student*. For example, if 10 students from an institution were being tested for licensure on a particular test, the change of one person from pass to fail could lower the institution's pass rate from 80% to 70%. If only six persons are being tested, one additional student passing a test can raise the pass rate from below 70% to above 80%. If only two students from an institution are taking a particular test in one year (which is quite common), there are only three possible pass rates: 0%, 50%, and 100%, and the change of one student from pass to fail or from fail to pass will alter the pass rate by 50 points.

Fluctuations are associated with pass rates calculated on a small number of test-takers, and the smaller the number, the greater the fluctuations. *Such fluctuations in pass rates could cause unfairness to institutions testing only a few teacher education graduates per year.* Their effect could result in institutions being given an advantage or a disadvantage with respect to meeting the pass rate. The institutions affected could be small or large but are those from which only a few students are tested per year on a licensing exam. Institutions that prepare larger numbers of candidates for a particular exam would be far less likely to have their funding depend on the performance of a single student.

Table 3, which follows, shows, for the six illustrative tests, the number and percentage of institutions with fewer than 10 students taking the test. The percentages of such institutions range from 68% to 90%, depending on the particular test. It is apparent that, on average, *over three- fourths of the institutions preparing students to teach in these six subject areas were testing fewer than 10 students.*[5]

[5] An institution preparing students for two or more of these six tests is counted once for each test taken by any of its students.

## Table 3
## *Institutions with Fewer than 10 Students*
## Taking Selected Praxis Subject Assessments
### 1996-1997 Testing Year

| Praxis II Subject Area Assessments [six illustrative tests] | Number of institutions with students tested in these subjects | Institutions with fewer than 10 students taking the test | |
|---|---|---|---|
| | | Number | Percent |
| Elementary Education: Curriculum, Instruction, and Assessment | 95 | 65 | 68% |
| English Language, Literature, and Composition: Content Knowledge | 251 | 175 | 70% |
| Mathematics: Content Knowledge | 155 | 126 | 81% |
| Biology and General Science | 158 | 131 | 83% |
| Social Studies: Content Knowledge | 181 | 134 | 74% |
| Spanish: Content Knowledge | 88 | 79 | 90% |
| TOTAL: | 928 | 710 | 77% |

Note: An institution preparing students for two or more of these six tests is counted once for each test taken by any of its students. Only those institutions located in states that have established a single qualifying score for the test are included. Each test-taker is counted only once, regardless of the number of attempts. Institutional affiliation is based on the test-taker's listing of "College where you received training relevant to the test" and may include test-takers who are not current students or recent graduates.

Table 4 reports on teacher preparation institutions *with 10 or more students* who took one of the six illustrative tests in the 1996-1997 testing year. Among these institutions, with the exception of those preparing students for the Mathematics: Content Knowledge test, relatively few (seven or fewer on any exam) would have been ineligible for funding based on their pass rates given a 70% pass rate requirement. On the math test, however, nearly 80% of the institutions (23 out of 29) would have been ineligible at the 70% requirement.

The impact on institutions of increasing the required pass rate also varies according to the subject test. For four of the six tests, relatively few institutions would become ineligible if the pass rate requirement increased from 70% to 75% or from 75% to 80%. For English and for social studies, however, the number of ineligible institutions would more than double if the pass rate requirement were to increase from 70% to 75% and would more than triple if the pass rate requirement changed from 70% to 80%. At the 80% pass rate requirement, twenty-six (over 90 percent) of the institutions preparing students for the math test and twenty-four (over 50 percent) preparing students for the social studies exam, would be ineligible. For the four other subject tests, from four to fourteen (13 percent to 44 percent) of the institutions—depending on the exam—would have become ineligible given an 80% pass rate requirement.

It should be noted that in some cases the same institution may be represented in the statistics for two or more of the tests summarized in Table 4.

## Table 4
## Institutions Not Achieving Specified Pass Rates on Selected Praxis Subject Assessments

**Includes only institutions with 10 or more students taking the test**
**1996-1997 Testing Year**

| Praxis II Subject Area Assessments | | At least a 70% Pass Rate | At least a 75% Pass Rate | At least an 80% Pass Rate |
|---|---|---|---|---|
| [six illustrative tests] | Total number of institutions | Number of institutions not meeting pass rate | Number of institutions not meeting pass rate | Number of institutions not meeting pass rate |
| Elementary Education: Curriculum, Instruction, and Assessment | 30 | 2 | 3 | 4 |
| English Language, Literature and Composition: Content Knowledge | 76 | 4 | 9 | 14 |
| Mathematics: Content Knowledge | 29 | 23 | 25 | 26 |
| Biology and General Science | 27 | 5 | 5 | 8 |
| Social Studies: Content Knowledge | 47 | 7 | 15 | 24 |
| Spanish: Content Knowledge | 9 | 3 | 3 | 4 |

Note: Scores earned by students attending each institution are compared with the qualifying score of the state in which the institution is located. Only those institutions located in states that have established a single qualifying score for the test are included. Each institution's pass rate refers to the group of students attending that institution that took the test in Testing Year 1996-1997. Each test-taker is counted only once, regardless of the number of attempts. Pass/fail status is based on the test-taker's last attempt in Testing Year 1996-1997. Institutional affiliation is based on the test-taker's listing of "College where you received training relevant to the test" and may include test-takers who are not current students or recent graduates.

- **Pass on First Attempt**

Some legislative proposals have required that institutional pass rates be calculated on the basis of those students who passed a particular licensing exam *on the first attempt.* The appropriateness of this language has generated considerable debate. Some students wish to "practice" by taking a test well in advance of when they need their license. Further, it is known that licensure candidates in other professions commonly take their licensure exams more than once. How those professions calculate their pass rates (on first attempt versus on any attempt) was not examined by this study. It is important to keep in mind that the first attempt proposals concern *how a pass rate would be calculated* for purposes of federal teacher education funding. They do not require states to restrict the number of tries allowed a candidate taking an exam for teacher licensure or for hiring.

The institutional pass rates that ETS routinely calculates are based on each student's *most recent score* within the testing year. Thus, if a student took a test and failed it one or more times—but ultimately passed it during that year—that student would be counted as having passed the test in terms of the institution's pass rate. It is also possible to calculate pass rates based on students' first attempt in the testing year.

The question as to the effect on pass rates of including scores of those allowed to re-take an exam is addressed by Table 5, *"Percent of Praxis Test-Takers Passing Licensing Exams on First Attempt and on Last Attempt in 1996-1997 Testing Year."* The data in general show small increases in pass rates based on test-takers' scores on repeat attempts in the same testing year. From analyses of Praxis I basic skills tests scores, we found minimal gains (from two to three percentage points) when the students counted as passing included those passing after more than one attempt. (These increases, however, represented from 766 to 1172 test-takers passing the test after failing on first attempt.) Small, but slightly larger gains from re-take opportunities were found for students taking the six Praxis II subject tests. The largest pass rate increase, of 8.3 percentage points from first to last attempt, was on the Mathematics: Content Knowledge test, representing 76 additional examinees.

These data are limited, however, in that they cover only one testing year (1996-1997). If students' attempts before and after that year had been included, the gains from first to last attempt would have been larger. In this analysis, the number of test-takers who passed on their first attempt in 1996-1997 includes some who took the test before that year and failed. Their inclusion raises the percent of those passing on first attempt. Further, the number of test-takers who passed on their last attempt in 1996-1997 does not include those who failed, re-took the test after that year, and passed. Their exclusion lowers the percent of those passing on last attempt. Both of these effects reduce the difference between the percentage passing on first and on last attempt.

## Table 5
## Percent of Praxis Test-Takers Passing Licensing Exams on First Attempt and on Last Attempt in 1996-1997 Testing Year
### Praxis I Academic Skills Assessments and six illustrative Praxis II Subject Tests

| Selected Praxis Assessments | Number of test-takers in 1996-1997 | Percent passing on first attempt in 1996-1997 | Percent passing on last attempt in 1996-1997 | Increase from first to last attempt in 1996-1997 | |
|---|---|---|---|---|---|
| | | | | Number of test-takers | Percent |
| Academic Skills Assessments:* | | | | | |
| Reading (PPST and CBT) | 37,837 | 81% | 83% | 766 | 2.0% |
| Writing (PPST and CBT) | 39,578 | 77% | 80% | 1172 | 3.0% |
| Mathematics (PPST and CBT) | 39,693 | 73% | 75% | 965 | 2.4% |
| Selected Subject Assessments: | | | | | |
| Elementary Ed.: Curriculum, Instruction, and Assessment | 1,415 | 91% | 93% | 30 | 2.1% |
| English Language, Literature and Composition: Content Knowledge | 2,231 | 87% | 90% | 62 | 2.8% |
| Mathematics: Content Knowledge | 916 | 49% | 57% | 76 | 8.3% |
| Biology and General Science | 774 | 75% | 79% | 30 | 3.9% |
| Social Studies: Content Knowledge | 1,437 | 76% | 80% | 63 | 4.4% |
| Spanish: Content Knowledge | 391 | 77% | 81% | 15 | 3.8% |

*Includes the Pre-Professional Skills Tests (PPST) and the Computer-Based Academic Skills Assessments (CBT).

Note: Scores earned by students at each institution are compared with the qualifying score of the state in which the institution is located. Institutional affiliation is based on the test-taker's listing of "College where you received training relevant to the test" and may include test-takers who are not current students or recent graduates. Only students at institutions located in states that have established a single qualifying score for the test are included. Each test-taker is counted only once, regardless of the number of attempts, with one exception: a test-taker taking both the PPST and CBT is counted twice. The number of test-takers who passed on their first attempt in 1996-1997 includes some who took the test before that year and failed. The number of test-takers who passed on their last attempt in 1996-1997 does not include those who failed, re-took the test after that year, and passed.

## IV. Guidelines for the Use of Praxis Scores

Data on the performance of examinees graduating from particular teacher education programs may provide information relevant to the quality of such programs. However, ETS urges that limitations be imposed on conclusions reached solely on the basis of Praxis pass rates. We distinguish between the use of Praxis performance data to conclude that individual students have attained an adequate level of preparedness for teaching (a licensing use) and the use of scores to determine whether an educational program has accomplished its educational mission (an evaluation use). The latter use requires significantly more information than that represented by student performance on Praxis tests.

Sound professional practice requires that the Praxis assessments be validated for the specific purposes for which they are being used.[6] ETS offers the following further guidelines to ensure appropriate use of Praxis scores when applied to teacher education program evaluation. We recommend that the evaluating state agency:

a. use ***multiple criteria*** that address the program's own mission and goals

b. collect ***pre- and post-assessment data*** on the level of student attainment in order to gauge progress during the program

c. set ***attainment goals*** for program graduates who are part of the evaluation collaboratively with the institution

d. establish with each institution a ***timeline for implementation*** of the evaluation and publish information on use of test data in the process

e. demonstrate that the content of subject assessments used to judge program quality reflects the material taught, assuring the student an ***opportunity-to-learn***

f. assure that data included in the evaluation are from only those students who ***received a substantial portion of their preparation in the program being evaluated***

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[6] See American Educational Research Association, American Psychological Association, National Council on Measurement in Education. (1985) *Standards for educational and psychological testing.* Washington, DC: American Psychological Association, p. 67; Educational Testing Service. (1987) *ETS standards for quality and fairness.* Princeton, NJ: Author, p. 21; and Educational Testing Service. (in press). *Guidelines for proper use of the Praxis Series and related assessments.* Princeton, NJ: Author.

## V. Conclusions

ETS recommends that policy-makers exercise caution in requiring minimum pass rates for institutions. The use of pass rates on teacher licensing exams as the sole criterion for institutional eligibility for funding would be inconsistent with good professional practice. Our guidelines for the use of Praxis scores, summarized in this document, point out that institutional efficacy is indicated by many factors, only one of which is the performance of graduates on licensing exams. We further recommend that tests be validated for the specific purposes for which they are used, including the evaluation of teacher preparation programs.

The use of pass rates to determine funding eligibility could result in inequities to institutions producing only a few teacher education graduates annually. Over three-quarters of the institutions studied for this analysis were testing fewer than 10 students in a subject. Pass rates based on such small numbers are unstable, as they are overly influenced by the performance of a single student. We thus encourage policy-makers to take this important concern into account as legislation is considered.

States use varying licensing tests with varying levels of difficulty and varying qualifying scores, and nine states do not test for teacher licensure. The states that use ETS assessments choose from nearly 140 Praxis subject tests. Thus, there is no comparability from state to state unless states use the same tests with the same qualifying scores. Some examinees seek licensure in a state other than the one in which they received their teacher preparation, and the "receiving" state is likely to have qualifying scores that are different from those of the "sending" state. Some states require that prospective teachers pass several tests in order to be licensed.

A single pass rate requirement, therefore, would not be equitably applied across states and would not represent a nationally uniform standard. The already federally sanctioned professional accreditation process does offer such a standard. We respectfully suggest that policy-makers explore the philosophy and intent of the NCATE 2000 initiative of the National Council for Accreditation of Teacher Education, which is designed to link program accreditation with licensing outcomes.